



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/954,449 | 09/17/2001 | Youqi Wang | 1012-125 (2001-023) | 6572 |
| 7590 | 01/28/2005 | | EXAMINER | |
| Scott A. Chapple Dobrusin & Thennisch PC Suite 311 401 South Old Woodward Avenue Birmingham, MI 48009 | | | GUTIERREZ, ANTHONY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2857 | |
| DATE MAILED: 01/28/2005 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|-------------------|--------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/954,449 | WANG ET AL. |
| | Examiner | Art Unit |
| | Anthony Gutierrez | 2857 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 November 2004.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,2,4-18,21-24,26-30,32,33 and 35-44 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4, 6-18,21-24,26-30,32,33 and 35-44 is/are rejected.

7) Claim(s) 5 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/3/04.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application (PTO-152)

6) Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 6, 9, 14-16, 32, and 33 are rejected under 35 U.S.C. 102(e) as being anticipated by Nicolich et al. (US Patent 6,697,454 B1).

As to claims 1, 2, Nicolich et al. discloses a method for optically screening sample materials, the method comprising (see col. 10, lines 27-50 and Fig. 11):

- providing a library of at least four sample materials upon a substrate (Fig. 11, plural elements 301);
- directing an electromagnetic wavefront at a surface of each of the at least four sample materials (Fig. 11, element 110);
- monitoring a reflected portion of the electromagnetic wavefront that is reflected off of the at least four sample materials (Fig. 11, element 410); and
- correlating the reflected portion of the electromagnetic wavefront to a topography of each of the at least four sample materials (col. 10, lines 35-37 where surface roughness is equivalent to topography) wherein steps (a) through (d) are performed without substantially contacting the at least four sample

materials with any probe (this is implied by the use of the electromagnetic wavefront (which is not considered by the Examiner to be a probe as commonly understood in the art).

In the cited passages the prior art reference discloses use of an x-ray beam as the electromagnetic source. X-rays are electromagnetic radiation in a particular frequency range. The claim includes the limitation, in the alternative, of an electromagnetic wavefront comprising ultraviolet light. Ultraviolet light is electromagnetic radiation in a particular frequency range that inherently lies on the border of the x-ray frequency range. MPEP 2131.03 states:

II. PRIOR ART WHICH TEACHES A RANGE WITHIN, OVERLAPPING, OR TOUCHING THE CLAIMED RANGE ANTICIPATES IF THE PRIOR ART RANGE DISCLOSES THE CLAIMED RANGE WITH "SUFFICIENT SPECIFICITY"

When the prior art discloses a range which touches, overlaps or is within the claimed range, but no specific examples falling within the claimed range are disclosed, a case by case determination must be made as to anticipation. In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, the reference teaches a broad range, and there is evidence of unexpected results within the claimed narrow range, depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. The unexpected results may also render the claims unobvious. The question of "sufficient specificity" is similar to that of "clearly envisaging" a species from a generic teaching. See MPEP § 2131.02. A 35 U.S.C. 102 /103 combination rejection is permitted if it is unclear if the reference teaches the range with "sufficient specificity." The examiner must, in this case, provide reasons for anticipation as well as a motivational statement regarding obviousness. *Ex parte Lee*, 31 USPQ2d 1105 (Bd. Pat. App. & Inter. 1993) (expanded Board). For a discussion of the obviousness of ranges see MPEP § 2144.05.

Since the "sufficient specificity" requirement is fact dependent and since it is a fact that the ultraviolet frequency range touches or overlaps the x-ray frequency range, and since the claim uses the alternative language "includes light selected from..." the Examiner considers the cited passages to anticipate the claimed invention.

The use of a substrate with a flexible portion for the samples is implied by the description of element 300 of Fig. 11 as being a combinatorial library for the samples 301.

As to claim 6, Nicolich et al. implies that steps (b) through (d) are repeated for determining a change in the topography of the at least four sample materials (col. 10, lines 37-40 with respect to interface roughness).

As to claim 9, Nicolich et al. discloses wherein each of the at least four sample materials is supported upon a suspended platform (Fig. 11, element 300).

As to claims 14 and 15, Nicolich et al. implies that the electromagnetic wavefront is provided by a laser (col. 2, lines 30-51).

As to claims 16, Nicolich et al. discloses wherein the electromagnetic wavefront is a single wavelength monotonic light (col. 10, lines 43-46).

As to claims 32 and 33, Nicolich et al. discloses wherein the electromagnetic wavefront is simultaneously directed at a surface of each of the at least four sample materials to provide screening in parallel, instead of conventional serial screening (col. 2, lines 17-28, col. 10, lines 21-24, and col. 10, lines 47-50).

3. Claims 4, 7, 8, 10-13, 17,18, 21-24, 26-30, and 37-41 rejected under 35 U.S.C. 102(e) as being anticipated by Hajduk et al. (US Patent 6,650,102 B2).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the

reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claim 4, 7, 8, 17, 30, 37-39, and 41, Hajduk et al. discloses a method for optically screening sample materials, the method comprising:

- providing a library of at least four sample materials (col. 11, lines 57-58) as well as greater than 16 samples (col. 12, lines 10-30);
- directing an electromagnetic wavefront at a surface of each of the at least four sample materials wherein the electromagnetic wavefront includes light selected from infrared light, visible light, ultraviolet light or a combination thereof (col. 19, lines 40-54);
- monitoring a reflected portion of the electromagnetic wavefront that is reflected off of the at least four sample materials (col. 19, lines 55-61); and
- correlating the reflected portion of the electromagnetic wavefront to a thickness of each of the at least four sample materials wherein the thickness of each of the at least four sample materials is greater than 1 micron (col. 18, lines 13-21, col. 11, lines 37-42 and col. 21, line 46-col. 22, line 46) . These passages imply the claimed determination of topography based on distance and the correlation to thickness, with respect to the disclosure of the step in the reference of measuring thickness using optical reflection profilometry. These passages also disclose calculating displacement based on volume and correlating displacement to flexure rigidity , which is correlated to thickness of the library sample.

Hajduk et al. Further discloses that the samples are each a polymeric product of a separate polymer synthesis reaction (col. 7, line 37-col. 11, line 13, specifically col. 7, lines 57-64).

As to claim 18, Hajduk et al. discloses in the cited passages above that steps (a) through (d) are performed without substantially contacting the at least four sample materials with any probe (this is implied by the use of a light source including LED's or lasers which is not considered by the Examiner to be a probe as commonly understood in the art).

As to claims 21 and 40, Hajduk et al. discloses that steps (b) through (d) are repeated for determining a change in thickness of the at least four sample materials (col. 18, lines 22-30, col. 20, lines 25-47 and col. 21, line 46-col. 22, line 46).

As to claim 22, Nicolich et al. discloses wherein each of the at least four sample materials is supported upon a suspended platform (Fig. 11).

As to claims 10-12, 23 and 24, Hajduk et al. discloses applying a stimulus to the at least four sample materials prior to the step of monitoring the reflected portion of the electromagnetic wavefront wherein the stimulus causes movement of the at least four sample materials at least during a portion of the step of monitoring the response of the electromagnetic wavefront (col. 15, lines 22-30 and col. 24, lines 20-37).

As to claims 13, and 26, Hajduk et al. discloses the use of interferometric techniques (col. 19, line 62-col. 20, line 24).

As to claims 27 and 28, Hajduk et al. implies that the electromagnetic wavefront is provided by a laser (col. 19, lines 55-61).

As to claims 29, Hajduk et al. discloses wherein the electromagnetic wavefront is a single wavelength monotonic light (col. 19, lines 62-66).

4. Claims 35, 36, and 42-44 are rejected under 35 U.S.C. 102(e) as being anticipated by Hajduk et al. (US Patent 6,535,284 B1).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

As to claims 35 and 36, Hajduk et al. discloses a method without probe contact that includes:

- providing a library of at least four sample materials upon a substrate (col. 20, lines 50-66 and Fig. 15);
- directing an electromagnetic wavefront with a wavefront source at a substantially planar surface of each of the at least four sample materials wherein the electromagnetic wavefront includes light selected from infrared light, visible light, ultraviolet light or a combination thereof (col. 2, lines 29-37, col. 4, lines 6-9, and col. 18, lines 24-29);
- monitoring with a sensor adjacent to the wavefront source, a response of the electromagnetic wavefront after the wavefront encounters the at least four sample materials (col. 2, lines 39-52); and

- correlating the response of the electromagnetic wavefront to a thickness of the at least four sample materials (col. 18, lines 57-67, and col. 23, line 61-col. 24, line 7).

As to claims 42-44, Hajduk et al. discloses that the thickness of the materials is greater than 1 micron (col. 23, line 49-col. 24, line 7) where the translation amplitude with respect to the sample is expressed as a fraction of the gap thickness and is equal to 2.0. Since the gap thickness is taught here to be 100 μ m, or 100 microns, then the sample amplitude is shown to be 200 microns.

Allowable Subject Matter

5. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter:

The Applicant's claim 5 is deemed allowable over the prior art as the prior art fails to teach or fairly suggest a method for optically screening materials comprising the steps of monitoring a response of an electromagnetic wavefront after the wavefront encounters at least four sample materials, in which mass of the sample materials is predetermined, the response is correlated to a surface topography of the materials, the topography is correlated to a volume of the materials and the mass and the volume are correlated to a density of the sample materials.

Response to Arguments

7. Applicant's arguments with respect to claims 1, 2, 4, 6-18, 21-24, 26-30, 32, 33, and 37-41, have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments with respect to claims 35, 36, and 42-44, have been fully considered but they are not persuasive.

The Applicant has amended claim 35, from which claims 36 and 42 depend, to include a wavefront source, a choice of electromagnetic wavefront light, the use of a sensor, and the limitation that the wavefront source is adjacent to the sensor. The Examiner believes that the use of a wavefront source and a sensor are specifically taught or inherently present in the cited passages. The cited passages in the reference, teaches the use of LED's or lasers, which suggests the use of visible light or infrared light. With respect to the use of the word "adjacent", the Examiner has not found any limiting definition in the specification beyond the broadest reasonable interpretation. The prior art therefore anticipates the claimed invention based on this interpretation.

The Examiner further disagrees with the Applicant that the Hajduk et al. reference (used in rejection of these claims) is not a proper anticipatory reference based on the manner of applying steps described and claimed in the present application. The Examiner considers the cited reference to read on the language of the claims. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The text book Elements of Electromagnetics to Matthew N.O. Sadiku discloses that the approximate frequency range of X-rays and Ultraviolet radiation touch or overlap.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Gutierrez whose telephone number is (571) 272-2215. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marc Hoff can be reached on (571) 272-2216. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AG
Anthony Gutierrez

1/21/04

Marc Hoff
MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600